

A4 preferably, the lengths of the counterweight guide rails 5 are shorter by the overall length H of the elevator car 1.--

Please replace the paragraph beginning on page 23, line 13 of the specification with the following rewritten paragraph:

AB --In addition, in the conventional art, since the machine room is installed outside a building, an external appearance of the building is bad. However, in the present invention, it is possible to enhance an external appearance of the building by removing the machine room and thereby broadening a design choice range of the building.--

Please replace the paragraph beginning on page 23, line 15 of the specification with the following rewritten paragraph:


AB --In the present invention, the machine room is removed. In the case that there is a building height limit in a certain region, it is possible to build a building without having a height increased by the height of the machine room.--

IN THE CLAIMS:

Please cancel claims 1 to 31 without prejudice or disclaimer of the subject matter contained therein.

Please add the following new claims:

--32. An elevator system without a machine room, comprising:
a hoistway having a pair of elevator car guide rails and a pair of counterweight guide rails, the counterweight guide rails being shorter than the elevator guide rails;

 an elevator car movable up and down along the elevator car guide rails;

a counterweight movable up and down along the counterweight guide rails;

roping means for suspending said elevator car and said counterweight; and

a winding apparatus engaged with said roping means for moving said roping means for thereby moving said elevator car;

wherein said winding apparatus is installed on an installation member fixed on upper portions of the counterweight guide rails at a position lower than an upper portion of said elevator car when said elevator car is positioned at a highest floor of said hoistway.

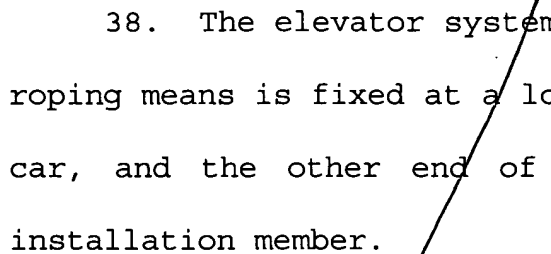
33. The elevator system of claim 32, wherein the upper portions of the counterweight guide rails are lower than a lower portion of the elevator car when the elevator car is positioned at the highest floor of the hoistway.

34. The elevator system of claim 32, wherein pulley means engaging said roping means are installed in an upper marginal space of the hoistway formed between the elevator car when the elevator car is positioned at the highest floor of the hoistway and an upper portion of the hoistway.

35. The elevator system of claim 32, wherein the upper portions of the counterweight guide rails are positioned between an upper portion and a lower portion of the elevator car when the elevator car is positioned at the highest floor of the hoistway.

36. The elevator system of claim 32, wherein said roping means drives the elevator car having a relatively longer movement stroke, and the counterweight having a smaller movement stroke.

37. The elevator system of claim 32, wherein one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway, and a pair of pulleys are; fixed at lower intermediate portions of the elevator car.



38. The elevator system of claim 32, wherein one end of said roping means is fixed at a lower portion of a side of the elevator car, and the other end of said roping means is fixed at the installation member.

39. The elevator system of claim 32, wherein one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway, and the other end of said roping means is fixed at an upper portion of the counterweight.

40. The elevator system of claim 39, wherein said fixing portion is an upper portion of one of the elevator car guide rails.

41. The elevator system of claim 39, wherein said fixing portion is a fixing member fixed at an inner wall surface of the hoistway.

42. The elevator system of claim 39, wherein said fixing portion is a fixing member fixed between upper portions of the elevator car guide rails and an inner wall surface of the hoistway.

43. The elevator system of claim 32, wherein one end of said roping means is a fixing portion formed at an upper portion of the hoistway, and the other end of said roping means is the installation member.

44. The elevator system of claim 32, wherein said winding apparatus is a thin disc-type winding apparatus.

45. The elevator system of claim 32, wherein:
one end of said roping means is fixed at a fixing portion formed at a lower portion of the elevator car;

said roping means is upwardly moved from the fixing portion and is wound onto an upper outer surface of a first pulley fixed at an upper portion of one of the elevator car guiderails;

a second pulley is engaged at a driving sheave of the winding apparatus, and said roping means is wound from the first pulley onto the driving sheave and the second pulley in an S-shape;

a third pulley is fixed at an upper portion of the counterweight, and then said roping means is wound from the second pulley onto a lower outer surface of the third pulley;

said roping means is upwardly moved from the third pulley, and the other end of said roping means is fixed at the installation

member for thereby implementing a 1:2 roping method.

46. The elevator system of claim 32, wherein said roping means is roped by a partial 2:3 roping method, and an under slung roping method.

47. The elevator system of claim 46, wherein:

one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway;

a pair of first pulleys are fixed at lower intermediate portions of the elevator car, and said roping means is wound from the fixing portion onto the first pulleys by the under slung roping method;

a second pulley is fixed at an upper portion of one of elevator car guide rails, and then said roping means is upwardly moved from the first pulleys and is wound onto an upper outer surface of the second pulley and then;

said roping means is downwardly moved from the second pulley and is wound onto an outer surface of a third pulley fixed at an upper intermediate portion of the counterweight;

said roping means is upwardly moved from the third pulley and is wound onto an upper outer surface of a driving sheave of the

winding apparatus, and said roping means is then downwardly moved from the driving sheave;

the other end of said roping means is fixed at an upper portion of the counterweight.

48. The elevator system of claim 46, wherein:
one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway;

a pair of first pulleys are fixed at lower intermediate portions of the elevator car, and said roping means is wound from the fixing portion onto a lower surface of the first pulleys by an under slung roping method;

a second pulley is fixed at an upper portion of one of the elevator car guide rails, and said roping means is upwardly moved from the first pulleys and is wound onto an upper outer surface of the second pulley;

a third pulley is fixed at an upper portion of a driving sheave of the winding apparatus in a slanting direction, and said roping means downwardly moved from the second pulley is wound in an S-shape with a slight gradient with respect to the driving sheave and the third pulley;

said roping means downwardly moved from the third pulley is

wound onto a lower outer surface of a fourth pulley fixed at an upper portion of the counterweight;

ca said roping means upwardly moved from the fourth pulley is wound onto an upper outer surface of a fifth pulley fixed at a lower portion of the driving sheave of the winding apparatus, and

the other end of said roping means downwardly moved from the fifth pulley is fixed at the upper portion of the counterweight.

49. The elevator system of claim 32, wherein said roping means is roped by a partial 2:4 roping method, and an under slung roping method.

50. The elevator system of claim 49, wherein:

one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway;

a pair of first pulleys are fixed at lower intermediate portions of the elevator car, and said roping means is wound from the fixing portion onto a lower outer surface of the first pulleys by an under slung roping method;

a second pulley is fixed at an upper portion of one of the elevator car guide rails, and said roping means is upwardly moved from the first pulleys and is wound onto an upper outer surface of

the second pulley;

said roping means downwardly moved from the second pulley is wound onto a lower outer surface of a third pulley fixed at an upper intermediate portion of the counterweight, and said roping means upwardly moved from the third pulley is wound onto an upper outer surface of a driving sheave of the winding apparatus;

said roping means downwardly moved from the driving sheave is wound onto a lower outer surface of a fourth pulley fixed at an upper portion of the third pulley fixed to the counterweight; and then

the other end of said roping means upwardly moved from the fourth pulley is fixed at the installation member.

51. The elevator system of claim 49, wherein:

one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway;

a pair of first pulleys are fixed at lower intermediate portions of the elevator car, and said roping, means is wound from the fixing portion onto the first pulleys by an under slung roping method;

a second pulley is fixed at an upper portion of one of the elevator car guide rails, and said roping means is upwardly moved

from the first pulleys and is wound onto an upper outer surface of the second pulley;

a third pulley is engaged at an upper portion of a driving sheave of the winding apparatus, and said roping means is wound from the second pulley onto the driving sheave and the third pulley in an S-shape;

a pair of fourth pulleys are fixed at an upper portion of the counterweight, and said roping means moved downwardly from the third pulley is wound onto a lower outer surface of one of the fourth pulleys;

said roping means upwardly moved from one of the fourth pulleys is wound onto an upper outer surface of a fifth pulley fixed at a lower intermediate portion of the installation member;

said roping means downwardly moved from the fifth pulley is wound onto a lower outer surface of the other one of the fourth pulleys; and then

the other end of said roping means upwardly moved from the other one of the fourth pulleys is fixed at a lower portion of the installation member.

52. The elevator system of claim 32, wherein the winding apparatus is positioned between a lower portion of said elevator car when said elevator car is positioned at the highest floor of the hoistway, and an upper surface of the counterweight when the counterweight is positioned at the lowest portion of the hoistway.

53. The elevator system of claim 32, wherein the winding apparatus is positioned in an installation region of a front portion or a rear portion in an interior of the hoistway formed as a traveling marginal space, and the counterweight is positioned below the winding apparatus.

54. An elevator system without a machine room, comprising:
a hoistway having a pair of elevator car guide rails and a pair of counterweight guide rails, the counterweight guide rails being shorter than the elevator guide rails;

an elevator car movable up and down along the elevator car guide rails;

a counterweight movable up and down along the counterweight guide rails;

roping means for suspending said elevator car and said counterweight; and

a winding apparatus engaged with said roping means for moving said roping means for thereby moving said elevator car;

wherein said winding apparatus is installed on an installation member fixed on upper portions of the counterweight guide rails at a position lower than an upper portion of said elevator car when said elevator car is positioned at a highest floor of said hoistway, and a movement stroke of the counterweight is shorter than a movement stroke of the elevator car.


55. The elevator system of claim 54, wherein said roping means drives the elevator car having a relatively longer movement stroke, and the counterweight having a smaller movement stroke at the same cycle, and is roped by a partial roping method.

56. The elevator system of claim 54, wherein said roping means is roped by a partial 2:3 roping method.

57. The elevator system of claim 56, wherein:

one end of said roping means is fixed at a fixing portion formed at an upper portion of the hoistway;
a pair of first pulleys are fixed at lower intermediate portions of the elevator car, and said roping means is wound from the fixing

portion onto a lower surface of the first pulleys by an under slung roping method;

 a second pulley is fixed at an upper portion of one of the elevator car guide rails, and said roping means is upwardly moved from the first pulleys the and is wound onto an upper outer surface of the second pulley;

a third pulley is fixed at an upper portion of a driving sheave of the winding apparatus in a slanting direction, and said roping means downwardly moved from the second pulley is wound in an S-shape with a slight gradient with respect to the driving sheave and the third pulley;

said roping means downwardly moved from the third pulley is wound onto a lower outer surface of a fourth pulley fixed at an upper portion of the counterweight;

said roping means upwardly moved from the fourth pulley is wound onto an upper outer surface of a fifth pulley fixed at a lower portion of the driving sheave of the winding apparatus, and

the other end of said roping means downwardly moved from the fifth pulley is fixed at the upper portion of the counterweight.--
